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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Yoshiaki Tanaka

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21395

7590

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EXAMINER

CHIO, TAT CHI

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2621

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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/766,880	<b>Applicant(s)</b> TANAKA ET AL.	
	<b>Examiner</b> TAT CHIO	<b>Art Unit</b> 2621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 01 June 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 41-43 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 41-43 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 41-43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Heo et al (5,987,417) in view of Endoh et al. (5,896,358).

**Consider claim 41**, Heo et al teach a signal encoding apparatus comprising:  
means for generating information (Col 2, lines 10-12 "The audio data is recorded in the linear pulse code modulation [PCM], Dolby AC-3, or MPEG format"); and means for formatting the information into a data structure; wherein the data structure has an area containing an audio title set (Col 13, lines 47-50 "the title set information management table recorded in one of the information areas of the DVD audio disk"), the audio title set including data representing a multi-channel digital audio signal resulting from steps including [1] quantizing a first original audio signal at a first sampling frequency (Col 12, lines 24-31 "a first, second or third number of quantization bits, a corresponding first, second or third sampling frequency, and information relative to the number of audio channels are all recorded on the audio title information management table"), [2] quantizing a second original audio signal into a quantization-resultant audio signal at a second sampling frequency (Col 12, lines 24-31 "a first, second or third number of quantization bits, a corresponding first, second or third sampling frequency, and

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information relative to the number of audio channels are all recorded on the audio title information management table”), and [3] subjecting the quantization-resultant audio signal to a bit shift (Col 3, lines 45-51 “If the audio coding mode is 010b or 011b, the quantization information is defined as follows...01b: the dynamic range control data is present in the MPEG audio stream”), the first original audio signal being in a first channel group having multiple channels (Col 12, lines 24-31 “a first, second or third number of quantization bits, a corresponding first, second or third sampling frequency, and information relative to the number of audio channels are all recorded on the audio title information management table”), the second original audio signal being in a second channel group having multiple channels (Col 12, lines 24-31 “a first, second or third number of quantization bits, a corresponding first, second or third sampling frequency, and information relative to the number of audio channels are all recorded on the audio title information management table”), the first sampling frequency being assigned to each of the channels in the first channel group (Col 7, line 66 – Col 9, 32 “the stream id of the linear PCM audio packet becomes 1011 1101b [private\_ stream\_ 1], its sub\_ stream\_ id being 1010 0\*\*\*b. Second, the stream id of the AC-3 audio packet becomes 1011 1101b [private\_ stream\_ 1], its sub\_ stream\_ id being 1000 0\*\*\*b. Third, the stream id of the MPEG audio packet becomes 1100 0\*\*\*b or 1101 0\*\*\*b, having no sub\_ stream\_ id. In the stream id or sub\_ stream\_ id, “\*\*\*” indicates the decoding audio stream number having a value between 0 and 7”), the second sampling frequency being assigned to each of the channels in the second channel group (Col 7, line 66 – Col 9, 32 “the stream id of the linear PCM audio packet becomes 1011 1101b [private\_

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stream\_1], its sub\_stream\_id being 1010 0\*\*\*b. Second, the stream id of the AC-3 audio packet becomes 1011 1101b [private\_stream\_1], its sub\_stream\_id being 1000 0\*\*\*b. Third, the stream id of the MPEG audio packet becomes 1100 0\*\*\*b or 1101 0\*\*\*b, having no sub\_stream\_id. In the stream id or sub\_stream\_id, "\*\*\*\*" indicates the decoding audio stream number having a value between 0 and 7"); the bit shift having a quantity common to the channels in the second channel group (Col 3, lines 45-51 "If the audio coding mode is 010b or 011b, the quantization information is defined as follows...01b: the dynamic range control data is present in the MPEG audio stream"); the audio title set including data representing the first sampling frequency and the second sampling frequency (Col 12, lines 24-31 "a first, second or third number of quantization bits, a corresponding first, second or third sampling frequency, and information relative to the number of audio channels are all recorded on the audio title information management table"), data representing the quantity of the bit shift and channel assignment information for identifying the channels in the first channel group and the channels in the second channel group (Col 10, lines 50-54 "The DTS audio packet has one byte of packet header, one byte of sub\_stream\_id, 3 bytes of audio frame information, and one byte to 2016 bytes of DTS audio data. The stream id of the DTS audio packet is 1011 1101b [private\_1], its sub\_stream\_id being 1000 1\*\*\*b. Here, \*\*\* of the sub\_stream\_id indicates the decoding audio stream number having a value of 0 to 7" and Col 3, lines 45-51 "If the audio coding mode is 010b or 011b, the quantization information is defined as follows...01b: the dynamic range control data is present in the MPEG audio stream").

However, Heo does not explicitly teach including a down-mix mode information for assigning whether or not inhibiting down-mix stereo output from the multi-channel digital audio signal.

Endoh teaches including a down-mix mode information for assigning whether or not inhibiting down-mix stereo output from the multi-channel digital audio signal (col. 9, lines 19-27 and col. 10, lines 16-32). Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to incorporate a down-mix mode information to the device taught by Heo to allow the device to selectively down mix the audio signal.

**Consider claims 42 and 43,** Heo and Endoh teach an apparatus for decoding the digital audio signal encoded by a signal encoding apparatus, the multi-channel audio signal being in the first channel group and the second channel group, the apparatus comprising: means for generating the data representing the first sampling frequency and the second sampling frequency (Col 12, lines 24-31 “a first, second or third number of quantization bits, a corresponding first, second or third sampling frequency, and information relative to the number of audio channels are all recorded on the audio title information management table”), the data representing the quantity of the bit shift (Col 3, lines 45-51 “If the audio coding mode is 010b or 011b, the quantization information is defined as follows...01b: the dynamic range control data is present in the MPEG audio stream”), and the channel assignment information for identifying the channels in the first channel group and the channels in the second channel group (Col

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10, lines 38-40 “Explaining the channel assignment of the linear PCM, ACHO and ACHI channels correspond to L channel and R channel in the stereo mode, respectively. The multi-channel mode is coded to be compatible with the stereo mode” and Col 10, lines 50-54 “The DTS audio packet has one byte of packet header, one byte of sub\_stream\_id, 3 bytes of audio frame information, and one byte to 2016 bytes of DTS audio data. The stream id of the DTS audio packet is 1011 1101b [private\_1], its sub\_stream\_id being 1000 1\*\*\*b. Here, \*\*\* of the sub\_stream\_id indicates the decoding audio stream number having a value of 0 to 7”); and means for decoding the digital audio signal in the first channel group and the second channel group in response to the first sampling frequency, the second sampling frequency, the quantity of the bit shift, the channel assignment information (Col 12, lines 24-31 “a first, second or third number of quantization bits, a corresponding first, second or third sampling frequency, and information relative to the number of audio channels are all recorded on the audio title information management table” and Col 3, lines 45-51 “If the audio coding mode is 010b or 011b, the quantization information is defined as follows...01b: the dynamic range control data is present in the MPEG audio stream”), and the down-mix mode information for assigning whether or not inhibiting down-mix stereo output from the multi-channel digital audio signal (col. 9, lines 19-27 and col. 10, lines 16-32 of Endoh); and down-mixing permitting means for permitting down-mixed stereo output from the multi-channel digital audio signal when said decoded down-mix mode information is not inhibiting down-mixed stereo output from the multi-channel digital audio signal (col. 9, lines 19-27 and col. 10, lines 16-32 of Endoh).

***Conclusion***

3. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to TAT CHIO whose telephone number is (571)272-9563. The examiner can normally be reached on Monday - Thursday 9:00 AM-5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thai Q. Tran can be reached on 571-272-7382. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/T. C. C./  
Examiner, Art Unit 2621

/Thai Tran/  
Supervisory Patent Examiner, Art Unit 2621